



On Heat Wave Definition

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Heat waves are extreme events which have not a standardized definition. The usual approach to define them is to consider an absolute or relative threshold for a weather variable, the daily maximum air temperature frequently, and to declare the heat wave as the period where the variable exceeds this threshold. This simple definition, properly complemented by (a) requiring a minimum duration of the hot spell, (b) requiring also that daily minimum air temperature exceeds another threshold, (c) using a defining variable which combines the air temperature and relative humidity, (d) a combination of the previous conditions, give rise to the operative definitions used by different National Meteorological Offices.

This schema assembles the majority of the operative heat wave definitions but it does not take into account the fact that hot waves, specially in the last 10 or 15 years, due to the temperature increase, appear frequently as elements of a cluster, separated by small time periods where the extremely hot conditions soften very little. Kysely (2000) has proposed a definition able to group the simple heat waves into a complex one, but the threshold values he employs, 30°C and 25°C, are valid for Central Europe and the criteria to carry out the merging procedure are not explicit.

The aim of this work is to contribute to establish a more general heat wave definition based on Kysely proposal. To this end, we analyse the impact of hot spell duration, daily maximum and minimum air temperatures on the excess mortality observed in population older than 65 years, in order to study the relevance of these variables and to establish adequate threshold values. The definition is being evaluated in several Spanish observatories, with different temperature and humidity conditions, located at the Ebro basin.

References

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